

REMARKS

Favorable reconsideration and allowance of the present application are respectfully requested in view of the following remarks. Claims 1-15 were pending prior to the Office Action. Claims 16-27 have been added through this Reply. Therefore, claims 1-27 are pending. Claims 1 and 16 are independent.

REFERENCE CITED IN THE SPECIFICATION

In the Office Action, the Examiner objected to a citing of a reference in the specification. *See Office Action, item 2.* The Examiner did not specify the reference he was referring to. Applicant assumes that the Examiner is referring to the KUBO application mentioned in paragraph [0004] of the specification.

Applicant properly informed Examiner regarding the existence of the KUBO application, now published as US Patent Application Publication 2004/0125226, in the letter submitted under MPEP §2001.06(b) on March 22, 2004.

However, as a matter of courtesy, an Information Disclosure Statement is enclosed herewith to submit the US Patent Application Publication 2004/0125226.

DRAWINGS

The drawings are objected to for informalities. *See Office Action, items 3 and 4.* The drawings have been amended to address this objection. Applicant respectfully requests that the objection to the drawings be withdrawn.

SPECIFICATION

The specification is objected to for informalities. *See Office Action, item 5.* The specification has been amended to address this objection. Applicant respectfully requests that the objection to the specification be withdrawn.

§ 103 REJECTION – MIYANO, SUMMA

Claims 1-15 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Miyano (USPN 5,610,390) in view of Summa et al. (USPN 6,777,661). *See Office Action, items 6 – 8.* Applicant respectfully traverses.

For a Section 103 rejection to be proper, a *prima facie* case of obviousness must be established. *See M.P.E.P. 2142.* One requirement to establish *prima facie* case of obviousness is that the prior art references, when combined, must teach or suggest all claim limitations. *See M.P.E.P. 2142; M.P.E.P. 706.02(j).* Thus, if the cited references fail to teach or suggest one or more elements, then the rejection is improper and must be withdrawn.

In this instance, independent claim 1 recites, in part “each of said microlenses causing the incident light to converge to both the first and second photosensitive cells of the corresponding photo-sensor.”

In the Office Action, the Examiner admits “Miyano does not disclose the pixels (12) having a first and second photosensitive cell[s].” *See Office Action, item 8.* Then by implication, the Examiner admits Miyano cannot teach or suggest the feature of the microlens converging the light onto both the first and second photosensitive cells of the photo-sensor.

Contrary to the Examiner’s allegation, Summa cannot be relied upon to correct for at least this deficiency of Miyano. In the Office Action, the Examiner alleges that the photodiode 30 and the VCCD 40 as disclosed in Summa are equivalent to the first and second sensitive cells as recited.

Summa discloses that each pixel includes a photodiode 30 and a vertical charge-coupled device (VCCD) 40. *See Figures 1, 2, and 3.* The photodiodes 30 collect incident light focused by the respective microlens 70 and output converted electrons representing the captured image. *See column 2, lines 9-11.* The VCCDs 40 receive the electrons from the photodiodes 30 and transfer the electrons to other parts of the image capturing device circuitry. *See column 2, lines 11-17.* Thus, the allegation that the VCCD 40 is equivalent to one of the two photosensitive cells as claimed is questionable at best.

Even if it is assumed that the VCCD 40 is equivalent to one of the two photosensitive cells as alleged, Summa still cannot correct for the above-noted deficiency of Miyano. Summa discloses that a gap 80 always exists between microlenses 70. *See Figure 3; column 2, lines 35-37.* Therefore, there is some amount of light **not** captured by the microlens 70. *Emphasis added.* The light not captured by the microlens 70 passes through the gap 80 and eventually to the respective VCCD 40. *See column 2, lines 38-40.* In other words, the microlens 70 does not converge any light onto the VCCD 40.

This is in clear contrast to the feature where the microlens converges light onto both the first and second photosensitive cells of the corresponding photo-sensor.

Therefore, claim 1 is distinguishable over the combination of Miyano and Summa for at least the reasons stated above. Claims 2-15 depend from independent claim 1 directly or indirectly. Therefore, these dependent claims are also distinguishable over the combination of Miyano and Summa for at least the reasons stated with respect to independent claim 1.

Applicant respectfully requests that the rejection of claims 1-15 based on Miyano and Summa be withdrawn.

NEW CLAIMS

Claims 16-27 have been added through this reply. All new claims are believed to be distinguishable over the cited references, individually or in any combination. Applicant respectfully requests that the new claims be allowed.

CONCLUSION


All objections and rejections raised in the Office Action having been addressed, it is respectfully submitted that the present application is in condition for allowance. Should there be any outstanding matters that need to be resolved, the Examiner is respectfully requested to contact Hyung Sohn (Reg. No. 44,346), to conduct an interview in an effort to expedite prosecution in connection with the present application.


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Art Unit: 2878
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If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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Attachment(s): Drawing Corrections - two (2) sheets

AMENDMENTS TO THE DRAWINGS

Attached hereto are two (2) sheets of corrected drawings that comply with the provisions of 37 C.F.R. §1.84. The corrected formal drawings incorporate the following changes:

- In Figure 1, line connecting the reference numeral 12 is corrected (*See Office Action, item 3*); and
- In Figure 9, reference numerals 62 and 64 are corrected (*See Office Action, item 4*).

Applicant respectfully requests that the corrected formal drawings be approved and made a part of the record of the above-identified application.